

will become apparent to those skilled in the art upon a more detailed description of the invention.

Brief description of Drawings

- 5 FIG. 1 is a perspective view of the preferred embodiment of the invention
FIG. 2 is an exploded perspective view of the preferred embodiment of the invention.
FIG. 3 is a side view of the preferred embodiment of the invention in the first position.
FIG. 4 is an enlarged side view of the head section of the preferred embodiment of the invention at the point where a staple is about to be lifted.
- 10 FIG. 5 is an enlarged side view of the head section of the preferred embodiment of the invention at the point where a staple is completely removed.
FIG. 6 is a perspective view of an embodiment of the invention combined with a stapler.
FIG. 7 is an exploded view of an embodiment of the invention combined with a stapler.
FIG. 8 is a perspective view of an embodiment of the invention attached to a stapler.
- 15 FIG. 9 is a perspective view of the attachments.
FIG. 10 is a perspective view of an embodiment of the invention housed around a stapler.
FIG. 11 is a perspective view of an embodiment of the invention where the lever member fits inside the base member, and where the base member is bent to provide a gap for the removed staple.
- 20 FIG. 12 is the front view of the embodiment of the invention where the lever member fits inside the base member, and where the base member is bent to provide a gap for the removed staple.
FIG. 13 is a perspective view of an embodiment of the invention where the lever member fits inside the base member, and where washers are used to provide a gap for the removed staple.
- 25 FIG. 14 is the front view of the embodiment of the invention where the lever member fits inside the base member, and where washers are used to provide a gap for the removed staple.
FIG. 15 shows an embodiment of the invention where the lever member fits inside the base member, and where instead of using grooves, the tongue made thinner.
FIG. 16 shows an embodiment of the invention where the stapler remover is pushed instead of
- 30 pulled.
FIG. 17 shows an embodiment of the pushed remover with the tongue on the lever member.
FIG. 18 is an enlarged side view of pushed remover with the tongue on the lever member.
FIG. 19 shows another embodiment of the invention combined with a stapler with narrower teeth.
- 35 FIG. 20 shows another embodiment of the invention attached to a stapler.
FIG. 21 shows another embodiment of the invention housed around a stapler.
FIG. 22 shows another embodiment of the invention combined to the side of a stapler device.

minimize movement of the base member 1 against the substrate during the lever member lifting operation, a gripping material such as rubber can be attached to the underside of the said base member.

- 5 The following describes variations of the present invention. The basic operation and principles of the present invention remains the same, allowing for variations that will be become clear in the descriptions.

FIG. 6 and FIG. 7 shows the present invention combined with a stapler device. All the
 10 necessary components of a stapler device will not be illustrated in this application, for two reasons: First, it is understood by the inventor that the manufacture of a stapler device is well known by those skilled in the art. Secondly, it will avoid confusion when describing the present invention combined with a stapler device. Referring to FIG. 6 and FIG. 7, the embodiment of the base member of the present invention is combined with the base 13 of a
 15 stapler. The embodiment of the lever member of the present invention is combined with the staple driving lever 14. To be consistent with the orientation introduced in the previous descriptions, the back end of the stapler base 13 is the end with the stapler anvil 12. The tongue 15 extends from the front end of the stapler base 13 and is used to wedge under the staple crossbar. The stapler base 13 is pivotally connected to the staple driving lever 14 by a
 20 pin 17 that provides a leverage fulcrum point. A groove 18 can be optionally etched into tongue 15 to indicate the point where the staple needs to be wedged up to for removal. The teeth 16 extends from the front end of the staple driving lever 14. The teeth 16 is narrow at tip 19 and wider at top section 20. FIG. 6 hows the staple driving lever 14 is at a first position where the teeth 16 is above the tongue 15 providing room to wedge a staple above the tongue
 25 15. The front edges 21 of the teeth 16 are curved in such a way that when the staple driving lever 14 is moved into a second position where the teeth 16 overlaps the tongue 15, the front edges 21 of the teeth 16 do not go below the baseline of the stapler base 13, and thus do not interfere with or damage the substrate.

30 FIG. 8 and FIG. 9 illustrate another embodiment of the present invention as attachments to a stapler device. To be consistent with the orientation introduced in the previous descriptions, the back end of the stapler base 23 is the end with the stapler anvil 22. A tongued member 25 is attached to the front end of the stapler base 23. A teethed member 26 is attached to the front end of the staple driving lever 24. Various means of attachment can be used to attach the
 35 tongued member 25 and teethed member 26 to the stapler device, such as strong bonding glue, rivets, welding or screws screwed into screw holes in the tongued member 25 and teethed member 26, or any other attachment means that is obvious to those skilled in the art. The

stapler base **23** is pivotally connected to the staple driving lever **24** by a pin **29** that provides a leverage fulcrum point. A groove **30** can be optionally etched into tongue **27** to indicate the point where the staple needs to be wedged up to for removal. The teeth **28** extends from the front end of the toothed member **26**. The teeth **28** is narrow at tip **31** and wider at top section **32**. FIG. 8 shows the staple driving lever **24** is at a first position where the teeth **28** is above the tongue **27** providing room to wedge a staple above the tongue **27**. The front edges **33** of the teeth **28** are curved in such a way that when the staple driving lever **24** is moved into a second position where the teeth **28** overlaps the tongue **27**, the front edges **33** of the teeth **28** do not go below the baseline of the tongued member **25**.

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In the normal operation of a stapler device, lifting the staple driving lever of a stapler exposes the contents of the stapler, and is an operation used to refill the stapler. To prevent lifting the staple driving lever in the staple removing operation, another embodiment of the present invention is presented. FIG. 10 shows an embodiment of the present invention housed around a stapler device. A lever member **37** is housed around the staple driving lever **36**, and can be moved independently from the staple driving lever **36**. Thus when the user is operating the staple remover, the user does not need to move the staple driving lever **36** of a stapler. To be consistent with the orientation introduced in the previous descriptions, the back end of the stapler base **35** is the end with the stapler anvil **34**. The tongue **38** extends from the front end of the stapler base **35** and is used to wedge under the staple crossbar. The stapler base **35** is pivotally connected to the staple driving lever **36** by a pin **40** that provides a leverage fulcrum point. The lever member **37** is also pivotally connected by the pin **40**. A groove **41** can be optionally etched into tongue **38** to indicate the point where the staple needs to be wedged up to for removal. The teeth **39** extends from the front end of the lever member **37**. The teeth **39** is narrow at tip **42** and wider at top section **43**. FIG. 10 shows the lever member **37** is at a first position where the teeth **39** is above the tongue **38** providing room to wedge a staple above the tongue **38**. The front edges **44** of the teeth **39** are curved in such a way that when the lever member **37** is moved into a second position where the teeth **39** overlaps the tongue **38**, the front edges **33** of the teeth **39** do not go below the baseline of the stapler base **35**, and thus do not interfere with or damage the substrate.

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FIG. 11 to FIG. 15 shows another embodiment of the present invention where the lever member **45** fits inside the base member **46**. When the lever member **45** fits inside the base member **46**, it is important to provide a gap for the staple when the staple is removed. FIG. 11 and FIG. 12 illustrates an embodiment where the gap is provided by bending the base member **46** at the section **48** near the pin **47**. An alternative way of providing the gap is with the use of washers **55** as shown in FIG. 13 and FIG. 14. When the lever member **45** fits inside the base

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member 46, it is important to provide space to facilitate the passage of teeth 50 when the staple remover is operated. FIG. 11 to FIG. 14 shows an embodiment of the present invention where there are parallel grooves 54 in tongue 49 that facilitate the passage of teeth 50 when the lever 45 is lifted. FIG. 15 shows another variation where the tongue 56 is made narrower so that it is no wider than the distance between the teeth 50 of the lever member 45. Referring to FIG. 11 to FIG. 14, the base member 46 is pivotally connected to the lever member 45 by a pin 47 that provides a leverage fulcrum point. The tongue 49 extends from the front end of the base member 46 and is used to wedge under the staple crossbar. The teeth 50 extends from the front end of the lever member 45. The teeth 50 is narrow at tip 51 and wider at top section 52. FIG. 11, FIG. 13, and FIG. 15 shows the lever member 46 is at a first position where the teeth 50 is above the tongue 49 providing room to wedge a staple above the tongue 49. The front edges 53 of the teeth 50 are curved in such a way that when the lever member 45 is moved into a second position where the teeth 50 overlaps the tongue 49, the front edges 53 of the teeth 50 do not go below the baseline of the base member 46, and thus do not interfere with or damage the substrate.

FIG. 16 shows another embodiment of the present invention where the staple removing operation is performed by pushing the lever member 57 instead of lifting it. The base member 58 is pivotally connected to the lever member 57 by a pin 59 that provides a leverage fulcrum point. The tongue 60 extends from the front end of the base member 58 and is used to wedge under the staple crossbar. A groove 61 can be optionally etched into tongue 60 to indicate the point where the staple needs to be wedged up to for removal. The teeth 62 extends from the front end of the lever member 57. The teeth 62 is narrow at tip 63 and wider at top section 64. FIG. 16 shows the lever member 57 is at a first position where the upper edge 66 of the tip 63 of teeth 62 is flush the top of the tongue 60. The back edges 65 of the teeth 62 are curved in such a way that when the lever member 57 is moved into a second position where the tip 63 of teeth 64 is well above the tongue 60, the back edges 65 of the teeth 62 do not go below the baseline of the base member 58, and thus do not interfere with or damage the substrate. Another variation of this embodiment of the present invention is where the lever member 57 fits inside the base member 58 and grooves are provided in the tongue 60 to facilitate the passage of teeth 62.

FIG. 17 and FIG. 18 shows another embodiment of the present invention where the tongue 67 extends from the lever member 68. A groove 71 is etched into tongue 67 to indicate the point where the staple needs to be wedged up to for removal, and to hold the staple when the lever member 68 is lifted. The base member 69 is pivotally connected to the lever member 68 by a pin 70 that provides a leverage fulcrum point.

FIG. 19 to FIG. 21 illustrates other embodiment of the invention combined with a stapler device. The embodiments in FIG. 19 to FIG. 21 are very similar to the embodiments presented in FIG. 6, FIG. 8, and FIG. 10, respectively.

- 5 The main differences are: the distance separating the teeth 72; optional flange 80 in tongue 79; and optional notches 81 in teeth 72.

- Referring to FIG. 19 to FIG. 21, the teeth 72 extends from front section of the lever member 73 such that right tooth 74 and left tooth 75 is closer to each other than the distance between
10 both sides of the first section 76 of the said lever member 73 near the pivot point 77; the said teeth 72 also closer to each other than the distance between the legs of a staple used by the said stapler. The narrower distance between the teeth 72 allows both of the said teeth to go under the crossbar of the staple when in the staple removing operation. There are parallel grooves 78 in the tongue 79 to facilitate the passage of teeth 72 when the staple remover is
15 operated. There is also an optional flange 80 protruding from the tongue 79 to prevent the staple from moving beyond the point where the staple can be removed. The flange assists in keeping the crossbar of the staple over the teeth 72 until most of the staple is removed. The same effect may also be achieved with optional notches 81 in teeth 72.
- 20 The use of the flange in the tongue and the notches in the teeth is not limited to this embodiment of the invention, but may be present in any embodiment of the invention.

FIG. 22 illustrates another embodiment of the invention combined to the side of a stapler device. This embodiment of the invention can be combined to either or both sides of the stapler device, catering for either left-handed and/or right-handed users. This embodiment is similar to the embodiments presented in FIG 6 except that the tongue 81 is located to the side
5 of the front end of the stapler base 82, and the teeth 83 is located to the side the front end of the staple driving lever 84. The advantage of this embodiment is that it is easier for the user to visually locate and manipulate the tongue 81 to wedge the tongue 81 under the staple crossbar.

The tongue 81 can be made as part of the stapler base 82, or as an attachment fixed to the
10 stapler base 82. The teeth 83 can be made as part of the staple driving lever 84, or as an attachment fixed to the staple driving lever 84. Various means of attachments such as strong bonding glue, welding, rivet, screws, or any other attachment means that is obvious to those skilled in the art may be used.

15 A lever member 85 may also be pivotally connected to the staple driving lever 84 so that the lever member 85 can be moved independently of the staple driving lever 84 to prevent exposing the contents of the stapler. The lever member 85 can be pivotally connected to the staple driving lever 84 with a pin, or with rivets, or with any other methods obvious to those skilled in the art.

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It should be understood that an embodiment of this invention is not limited to the embodiments described in this document, and may consists of any combination of the embodiments described in this document.

tongued member, to a second position where the teeth overlaps the tongue, the said teeth engages the underside of the staple crossbar and lifts it from the substrate; additionally the front edges of the teeth are curved such that when the staple driving lever is moved from the said first position to the said second position, the said front edges of the teeth does not extend below the baseline of the tongued member.

20. An apparatus for removing staples comprising:

a stapler, with a stapler base pivotally connected to a staple driving lever, where the rear end is the staple driving end;

a lever member pivotally connected to the staple driving lever of the said stapler;

a means of wedging under the staple crossbar with a tongue extending from the front end of the said stapler base;

and a staple lifting means comprises of teeth which extends from the front end of the said lever member, such that when the lever member is moved from a first position where the teeth is above the said tongue of the base member, to a second position where the teeth overlaps the tongue, the said teeth engages the underside of the staple crossbar and lifts it from the substrate; additionally the front edges of the teeth are curved such that when the lever member is moved from the said first position to the said second position, the said front edges of the teeth does not extend below the baseline of the base member.

21. The apparatus of claim 7, wherein the staple lifting means comprises of teeth which extends from the front end of the said lever member, such that when the lever member is moved from a first position where the upper edge of the tip of the said teeth is flush with the upper edge of the tongue, to a second position where the tip of the teeth is well above the tongue, the said teeth engages the underside of the staple crossbar and lifts it from the substrate; additionally the bottom edges of the teeth are curved such that when the lever member is moved from the said first position to the second position, the said bottom edges of the teeth does not extend below the baseline of the base member.

22. The apparatus of claim 21, including means of biasing the lever member away from the base member into the first position.

23. The apparatus of claim 22, wherein the biasing means comprises of a spring positioned between the levers.

24. The apparatus of claim 21, wherein the lever member is a chambered member such that the base member fits inside the lever member.

25. The apparatus of claim 21, wherein the base member is a chambered member such that the lever member fits inside the base member.

26. The apparatus of claim 25, wherein the tongue of the base member contain grooves to facilitate the passage of the teeth of the lever member.

27. The apparatus of claim 25, wherein the width of the base member is changed at the front tongued end such that the said tongue is no wider than the distance between the teeth of the lever member.

28. An apparatus for removing staples comprising:

a stapler, with a stapler base pivotally connected to the staple driving lever, where the rear end is the staple driving end;

a means of wedging under the staple crossbar with a tongue extending from the front end of the said stapler base;

and a staple lifting means comprises of teeth which extends from the front end of the said staple driving lever, such that when the staple driving lever is moved from a first position where the upper edge of the tip of the said teeth is flush with the upper edge of the tongue, to a second position where the tip of the teeth is well above the tongue, the said teeth engages the underside of the staple crossbar and lifts it from the substrate; additionally the bottom edges of the teeth are curved such that when the staple driving lever is moved from the said first position to the second position, the said bottom edges of the teeth does not extend below the baseline of the stapler base.

29. An apparatus for removing staples comprising:

a stapler, with a stapler base pivotally connected to the staple driving lever, where the rear end is the staple driving end;

a tongued member attached to the front end of the base of the said stapler;

a teethed member attached to the front end of the staple driving lever of the said stapler;

a means of wedging under the staple crossbar with a tongue extending from the front end of the said tongued member;

and a staple lifting means comprises of the said teethed member attached to the front end of the said staple driving lever, such that when the staple driving lever is moved from a first position where the upper edge of the tip of the said teeth is flush with the upper edge of the tongue, to a second position where the tip of the teeth is well above the tongue, the said teeth engages the underside of the staple crossbar and lifts it from the substrate; additionally the bottom edges of the teeth are curved such that when the staple driving lever is moved from the said first position to the second position, the said bottom edges of the teeth does not extend below the baseline of the tongued member.

30. An apparatus for removing staples comprising:

a stapler, with a stapler base pivotally connected to the staple driving lever, where the rear end is the staple driving end;

a tongued member attached to the front end of the staple driving lever of the said stapler;

5 a means of wedging under the staple crossbar with a tongue extending from the front end of the said tongued member;

and a staple lifting means comprises of the said tongued member attached to the front end of the said staple driving lever, such that when the staple driving lever is moved from a first position where the baseline of the tongue is flush with the baseline of the stapler base, to a second position where the tongue is well above the baseline of the stapler base, the said tongue lifts the staple from the substrate.

36. An apparatus for removing staples comprising:

a stapler, with a stapler base pivotally connected to the staple driving lever, where the rear end is the staple driving end;

15 a chambered lever member that houses the staple driving lever of the said stapler, and is pivotally attached to the staple driving lever at a first section near the front end;

a means of wedging under the staple crossbar with a tongue extending from the front end of the said chambered lever member;

20 a staple lifting means comprises of the said tongue which extends from the front end of the said lever member, such that when the lever member is moved from a first position where the baseline of the tongue is flush with the baseline of the stapler base, to a second position where the tongue is well above the baseline of the stapler base, the said tongue lifts the staple from the substrate.

25 **37. An apparatus for removing staples comprising:**

a stapler, with a stapler base pivotally connected to the staple driving lever, where the rear end is the staple driving end;

a means of wedging under the staple crossbar with a tongue located to the side of the front end of the said stapler base;

30 and a staple lifting means comprises of teeth located to the side of the front end of the said staple driving lever, such that when the staple driving lever is moved from a first position where the teeth is above the said tongue of the stapler base, to a second position where the teeth overlaps the tongue, the said teeth engages the underside of the staple crossbar and lifts it from the substrate; additionally the front edges of the teeth are curved such that when the staple driving lever is moved from the said first position to the said second position, the said front

edges of the teeth does not extend below the baseline of the stapler base.

38. An apparatus for removing staples comprising:

a stapler, with a stapler base pivotally connected to the staple driving lever, where the rear end is the staple driving end;

5 a tongued member located to the side of the front end of the base of the said stapler;
a teathed member located to the side of the front end of the staple driving lever of the said stapler;

a means of wedging under the staple crossbar with a tongue located to the side of the front end of the said tongued member;

10 and a staple lifting means comprises of the said teathed member located to the side of the front end of the said staple driving lever, such that when the staple driving lever is moved from a first position where the teeth is above the said tongue of the tongued member, to a second position where the teeth overlaps the tongue, the said teeth engages the underside of the staple crossbar and lifts it from the
15 substrate; additionally the front edges of the teeth are curved such that when the staple driving lever is moved from the said first position to the said second position, the said front edges of the teeth does not extend below the baseline of the tongued member.

39. An apparatus for removing staples comprising:

20 a stapler, with a stapler base pivotally connected to a staple driving lever, where the rear end is the staple driving end;

a lever member pivotally connected to the staple driving lever of the said stapler, where the lever member is located to the side of the said staple driving lever;

25 a means of wedging under the staple crossbar with a tongue located to the side of the front end of the said stapler base;

30 and a staple lifting means comprises of teeth which is located to the side of the front end of the said lever member, such that when the lever member is moved from a first position where the teeth is above the said tongue of the base member, to a second position where the teeth overlaps the tongue, the said teeth engages the underside of the staple crossbar and lifts it from the substrate; additionally the front edges of the teeth are curved such that when the lever member is moved from the said first position to the said second position, the said front edges of the teeth does not extend below the baseline of the base member.